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(71) Applicant: Mazda Motor Corporation
No. 3-1, Shinchi Fuchu-cho
Aki-gun Hiroshima-ken(JP)

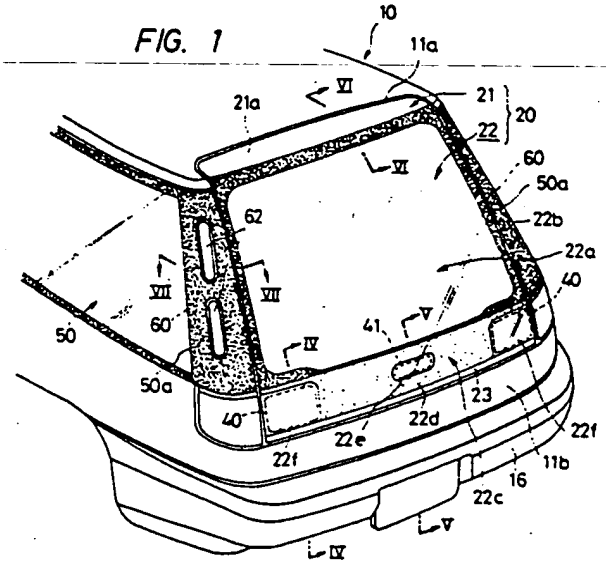
(72) Inventor: Harasaki, Hayatsugu
10-49, Tsukimi-machi Kaita-cho
Aki-gun Hiroshima-ken(JP)

(74) Representative: Melzer, Wolfgang, Dipl.-Ing. et al
Patentanwälte Dipl.-Ing. H. Mitscherlich
Dipl.-Ing. K. Gunschmann Dipl.-Ing.
Dr.rer.nat. W. Körber Dipl.-Ing. J.
Schmidt-Evers Dipl.-Ing. W. Melzer
Steinsdorfstrasse 10
D-8000 München 22(DE)

(54) Arrangements for forming rear partial structures of vehicle body constructions.

(57) An arrangement for forming a rear partial structure of a vehicle body construction comprises a rear end portion of a vehicle body (10) forming an opening therein, a rear lamp assembly (40) mounted on the rear end portion of the vehicle body (10) so as to be disposed at a lower margin of the opening, and a tail gate (20) mounted on the rear end portion of the vehicle body (10) to be operative to open and close the opening. The tail gate (20) includes a gate frame member (21) which is attached through a hinge to the rear end portion of the vehicle body (10) and a tail gate glass (22) which is attached to the gate frame member (21) and provided with a prolonged portion (22c) incorporated therewith to extend outward beyond at least a portion of one side of the gate fram member (21) so as to cover ther with an outer surface of the rear lamp assembly (21) when th tail gate (20) is in a position for closing the opening.

FIG. 1



EP 0 256 399 A1

"ARRANGEMENTS FOR FORMING REAR PARTIAL STRUCTURES OF VEHICLE BODY CONSTRUCTIONS"

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates generally to arrangements for forming rear partial structures of vehicle body constructions, and more particularly, is directed to an improvement in a rear partial structure of a vehicle body construction in which left and right rear pillars, a tail gate and various m mbers and portions disposed in and around the rear pillars and tail gate are included.

escription of the Prior Art

On a rear portion of a vehicle body, at least one tail lamp assembly is usually mounted. In the event of a sedan or coupe type automobile having a trunk room at its rear portion, for example, left and right tail lamp assemblies are provided respectively at left and right sides of a rear outer panel positioned behind the trunk room, as shown in the Japanese utility model application published before xamination under publication number 59-2643.

In such a rear portion of the vehicle body as proposed previously, the outer surface of each tail lamp assembly may be usually set to have a diff rence in level compared with the outer surface of the rear outer panel, for example, so as to protrude outward beyond the outer surface of the rear outer panel. This results in that the vehicle body has an uneven outer surface around the left id right tail lamp assemblies mounted thereon, and such unevenness on the outer surface of the vehicle body injures an appearance of the vehicle body and becomes an obstacle to reduction of air resistance on the outer surface of the vehicle body.

In the meantime, although it is usual that air extractors for ventilation are provided on left and right rear side panels of a vehicle body, respectively, as shown in the Japanese utility model application published before examination under publication number 60-180215, there has been also proposed to provide the air extractors for ventilation respectively on left and right rear pillars of a vehicle body in which each of left and right rear quarter window glasses extends backward to have a prolongation incorporate therewith and fix d with adhesive agent on the left or rear pillar, so that a flushed outer surface is obtained on each of th left id right sides of the vehicle body. In the case of ne vehicle body having the rear pillars each provided with the air extractor for ventilation as described above, however, each air extractor for ventilation is formed with openings provided on both the rear pillar and the prolongation of the window glass fixed of the rear pillar and therefore it is not easy to position the prolongation of the window glass appropriately on the rear pillar and further it is required to keep the prolongation of the window glass, which is appropriately positioned on the rear pillar, staying correctly on the rear pillar. Consequently, complicated work conducted for relatively long time is necessitated for assembling the rear portion of the vehicle body.

OBJECTS AND SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide an arrangement for forming a rear partial structure of a vehicle body construction, which avoids the aforementioned problems encountered with the prior art.

Another object of the present invention is to provide an arrangement for forming a rear partial structure of a vehicle body construction, by which a flushed outer surface of the vehicle body construction is obtained around a rear lamp assembly mounted on a rear portion of the vehicle body construction.

A further object of the present invention is to provide an arrangement for forming a rear partial structure of a vehicle body construction, by which a flushed outer surface is obtained on a rear portion of the vehicle body construction in which each rear lamp assembly and each rear pillar are included.

A still further object of the present invention is to provide an arrangement for forming a rear partial structure of a vehicle body construction, by which a flushed outer surface of the vehicle body construction is obtained on and around each rear pillar on which a rear portion of a rear quarter window glass is fixed and an air extractor for ventilation is provided on the rear pillar with an opening formed through the rear portion of the rear quarter window glass which is easily attached to the rear pillar correctly.

According to the present invention, there is provided an arrangement for forming a rear partial structure of a vehicle body construction, which comprises a rear end portion of a vehicle body forming an opening therein, a rear lamp assembly mounted on the rear end portion of the vehicle body so as to be disposed at a lower margin of the opening formed in the rear end portion of the vehicle body, and a tail gate mount d on the rear end portion of the vehicle body to be operative to

open and close the opening formed in the rear end portion of the vehicle body, said tail gate being composed of a gate frame member which is attached through a hinge to the rear end portion of the vehicle body and a tail gate glass which is attached to the gate frame member and provided with a prolongation incorporated therewith to extend outward beyond at least a portion of one side of the gate frame member so as to cover therewith an outer surface of the rear lamp assembly when the tail gate is in a position for closing the opening formed in the rear end portion of the vehicle body.

In the embodiment of arrangement for forming a rear partial structure of a vehicle body construction taken by way of example, the rear end portion of the vehicle body includes a pair of rear pillars disposed at left and right sides respectively to face each other with the opening between and a rear ortion of each of left and right rear quarter window glasses is attached to each rear pillar for covering an outer surface of the same. Further, an air extractor for ventilation is formed with openings provided on each rear pillar and the rear portion of the rear quarter window glass fixed thereon respectively and an air outlet trim which has a base portion fixed on the rear pillar, a side wall portion standing up from the base portion to surround a space on the base portion and provided with at least one opening thereon, and a fringe portion disposed at the end of the side wall portion and engaged with the opening provided on the rear portion of the rear quarter window glass on the rear pillar.

In the arrangement thus constituted in accordance with the present invention, since the rear lamp assembly mounted on the rear end portion of the vehicle body is covered by the prolongation of the tail gate glass attached to the gate frame nember of the tail gate when the tail gate is in the position for closing the opening formed in the rear end portion of the vehicle body, a flushed rear outer surface is obtained on the vehicle body and therefore the vehicle body is improved in its appearance and has reduced air resistance on the outer surface thereof.

In the embodiment mentioned above, since the air outlet trim which constitutes the air extracting structure for ventilation on each rear pillar is provided to be fixed to the rear pillar and engaged with the opening formed on the rear portion of the rear quarter window glass attached to the rear pillar for covering the same, the rear portion of each r ar quarter window glass can be easily positioned correctly on the corresponding rear pillar to be fixed to cover th same and complicated work conducted for relatively long time is not required for assembling the rear end portion of the vehicle body.

The above, and other objects, features and advantages of the pr sent invention will become apparent from the following detailed description which is to b read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. I is a schematic perspective view showing an embodiment of arrangement for forming a rear partial structure of a vehicle body construction according to the present invention;

Fig. 2 is a schematic perspective view, partly in cutout, of an example of a gate frame member of a tail gate employed in the embodiment shown in Fig. I;

Fig. 3 is a schematic perspective view of a tail gate glass attached to the gate frame member shown in Fig.2;

Fig 4 is a schematic cross-sectional view taken on line IV-IV in Fig. I;

Fig. 5 is a schematic cross-sectional view taken on line V-V in Fig. I;

Fig. 6 is a schematic cross-sectional view taken on line VI-VI in Fig. I;

Fig. 7 is a schematic cross-sectional view taken on line VII-VII in Fig. I; and

Fig. 8 is an exploded perspective view of a part of an example of an air extractor for ventilation employed in the embodiment shown in Fig. I.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Now, an embodiment of arrangement for forming a rear partial structure of a vehicle body construction according to the present invention will be described with reference to the accompanying drawings.

Fig. I shows one example of arrangement for forming a rear partial structure of a vehicle body construction according to the present invention, which is applied to a station wagon type automobile. This station wagon type automobile has a vehicle body I0 which includes a rear end portion thereof in which a rear opening is provided. The rear end portion of the vehicle body I0 comprises a rear roof end IIa, left and right rear pillars 60 each covered by a rear portion 50a of a left or right rear quarter window glass 50, and a rear panel IIb having a low r portion thereof cov red by a rear bumper I6, which are disposed to surrounding the rear opening. Further, the rear end portion of the vehicle body I0 is provided with a tail gate 20 which is mounted on the rear roof end IIa to be operative to open and close the rear opening.

As shown in Figs. I to 6, the tail gate 20 comprises a gate frame member 2I which is independently shown in Fig. 2 and attached through a hinge (not shown in the drawings) to the rear roof end IIa at an upper side 2Ia thereof so that a lower side 2Ib of the gate frame member 2I which is coupled through a pair of left and right sides 2Id of the gate frame member 2I with the upper side 2Ia is able to be lifted, and a tail gate glass 22 which is independently shown in Fig. 3 and attached with adhesive agent 30 (Figs. 4, 5 and 6) to a bonding surface portion 2Ie. The lower side 2Ib of the gate frame member 2I is provided with cutouts 2Ic at its left and right lower corner portions, respectively, and each of the upper side 2Ia, the lower side 2Ib and the left and right sides 2Id is formed to have a closed cross section and provided thereon the bonding surface portion 2Ie.

The tail gate glass 22 includes a window portion 22a which is provided at its outer fringe with a bonding area 22b formed to correspond to the bonding surface portion 2Ie of the gate frame member 2I so as to be actually bonded to the same with the adhesive agent 30 and a prolonged portion 22c which is incorporated with the window portion 22a to extend from one side of the window portion 22a. An inner surface of the bonding area 22b provided in the window portion 22a is covered by, for example, a ceramic coating for blind-folding the inside of the tail gate glass 22. The prolonged portion 22c is provided at the generally central part thereof with a frosted area 22d, a first clear area 22e positioned to be surrounded by the frosted area 22d, and a pair of second clear areas 22f at left and right side parts thereof, respectively. Further, a lower end of the prolongated portion 22c is provided with a end protector 23.

In the situation wherein the tail gate glass 22 is fixes to the gate frame member 2I which is mounted through the hinge on the rear roof end IIa of the vehicle body I0, the prolonged portion 22c extends downward from the window portion 22a for covering the lower side 2Ib of the gate frame member 2I by the frosted area 22d and for covering also the cutouts 2Ic provided at the lower side 2Ib of the gate frame member 2I by the second clear areas 22f, respectively.

On the rear panel IIb which is disposed under the rear opening formed in the rear end portion of the vehicle body I0, left and right rear lamp assemblies 40 are mounted, as shown in Figs. I and 4. The left and right rear lamp assemblies 40 are disposed at a lower margin of the rear opening provided in the rear end portion of the vehicle body I0 so as to enter in the cutouts 2Ic provided at th lower side 2Ib of the gate frame member 2I, respectively, and therefore outer surfaces of the left and right rear lamp assemblies 40 are covered with the second clear areas 22f provided at the left and right side parts of the prolonged portion 22c of the tail gate glass 22 when the tail gate 20 is in a position to close the rear op ning provided in the rear end portion of the vehicle body I0, as shown in Figs. I and 4. Accordingly, a flushed outer surface of the vehicle body I0 is obtained on and around the left and right rear lamp assemblies 40 mounted on the rear panel IIb. Incidentally, when the tail gate 20 is in the position to close the rear opening in the rear end portion of the vehicle body I0, the lower side 2Ib of the gate frame member 2I is received by a cushion member I2 mounted on the rear panel IIb.

In this embodiment, a high mount rear lamp assembly 4I is mounted on the lower side 2Ib of the gate frame member 2I so as to face the inner surface of the first clear area 22e provided in the prolonged portion 22c of the tail gate glass 22 which is attached to the gate frame member 2I, as shown in Figs. I and 5. This means that the outer surface of the high mount rear lamp assembly 4I is covered by the prolonged portion 22c of the tail gate glass 22 so that a flushed outer surface of the vehicle body I0 is also obtained on and around the high mount rear lamp assembly 4I.

Further, a pair of air extractors 62 are provided for ventilating the inside of the vehicle body I0 on the left rear pillar 60 which is covered by the rear portion 50a of the left rear quarter window glass 50, as shown in Fig. I, and similarly another pair of air extractors 62 are also provided for ventilating the inside of the vehicle body I0 on the right rear pillar 60 which is covered by the rear portion 50a of the right rear quarter window glass 50 though they are put out of sight in Fig. I. Each of the rear portions 50a of the left and right rear quarter window glasses 50 has a rear end thereof which faces one of left and right ends of the tail gate glass 22 with a predetermined space between.

As shown in Figs. 7 and 8, one of the air extractors 62 provided on the left rear pillar 60 to which the rear portion 50a of the left rear quarter window glass 50 is fixed with the adhesive agent 30 at the outside and a lining member 70 is also attached at the inside, is formed with openings 60a formed on the left rear pillar 60, an opening 50b formed on the rear portion of the left rear quarter window glass 50, and an air outlet trim 64 interconnecting therethrough the left rear pillar 60 and the rear portion 50a of the left rear quarter window glass 50. The air outlet trim 64 has a base portion 64a fixed on the left rear pillar 60 by a screw 66, a side wall portion 64b standing up from the base portion 64a to surround a space on the base portion 64a and provided thereon with openings 64c.

and a fringe portion 64d disposed at the end of the side wall portion 64b and engaged with the opening 50b provided on the rear portion 50a of the left rear quarter window glass 50.

Further, the other of the air extractors 62 provided on the left rear pillar 60 and each of the air extractors 62 provided on the right rear pillar 60 are also constituted respectively in the same manner as the air extractor 62 shown in Fig. 7.

In the air extractor 62 for ventilation thus constituted, air is derived from the inside to the outside of the vehicle body I0 through the openings 60a formed on the left or right rear pillar 60, the openings 64c formed on the side wall portion 64b of the air outlet trim 64 and the space surrounded by the fringe portion 64d of the air outlet trim 64.

In the embodiment aforementioned, since the air outlet trim 64 which is provided for interconnec-

therethrough each of the left and right rear pillars 60 and the rear portion 50a of each of the left and right rear quarter window glasses 50 is used, the rear portion 50a of each of the left and right rear quarter window glasses 50 can be easily positioned correctly on the corresponding left or right rear pillar 60 to be fixed to cover the same and therefore complicated work conducted for relatively long time is not required for assembling the rear end portion of the vehicle body I0.

Claims

I. An arrangement for forming a rear partial structure of a vehicle body construction comprising, a rear end portion of a vehicle body (I0) forming an opening therein, a rear lamp assembly (40) mounted on said rear end portion of the vehicle body (I0) so as to be disposed at a lower margin of said opening formed in said rear end portion of the vehicle body (I0), and a tail gate (20) mounted on said rear end portion of the vehicle body (I0) to be operative to open and close said opening formed in said rear end portion of the vehicle body(I0),

characterized in that said tail gate (20) comprises a gate frame member (2I) which is attached through a hinge to said rear end portion of the vehicle body (I0) and a tail gate glass (22) which is attached to said gate frame member (2I) and provided with a prolonged portion (22c) incorporated therewith to extend outward beyond at least a portion of one side of said gate fram member (2I) so as to cover therewith an outer surface of said rear lamp assembly (40) when said tail gate (20) is in a position for closing said opening formed in said rear end portion of the vehicle body (I0).

2. An arrangement according to claim I, wherein said gate frame member (2I) has a lower side portion (2Ib) provided with cutouts (2Ic) disposed at its left and right lower corner portions, respectively, to be covered by said prolonged portion (22c) provided in the tail gate glass (22) when said tail gate (20) is in the position for closing said opening formed in said rear portion of the vehicle body (I0).

3. An arrangement according to claim 2, wherein said rear lamp assembly (40) is positioned to enter in one of said cutouts (2Ic) provided on said lower side portion (2Ib) of the gate frame member (2I) when said tail gate (20) is in the position for closing said opening formed in said rear portion of the vehicle body(I0).

4. An arrangement according to claim 2 or 3, wherein said lower side portion (2Ib) of the gate frame member (2I) is provided with an additional lamp assembly (4I) disposed to face an inner surface of said prolonged portion (22c) provided in the tail gate glass (22) attached to the gate frame member (2I).

5. An arrangement according to any one of claims I to 4, wherein said tail gate glass (22) has a window portion (22a) extending to be connected at its one side with said prolonged portion (22c), said window portion (22a) being provided therein with a bonding area (22b) elongating along the outer fringe thereof to be bonded to a bonding surface portion (2Ie) formed on said gate frame member (2I).

6. An arrangement according to claim 5, wherein an inner surface of said bonding area (22b) provided in the window portion (22a) of the tail gate glass (22) is covered by a ceramic coating and said prolonged portion (22c) provided in the tail gate glass (22) as clear areas for covering said rear lamp assembly (40) and said additional lamp assembly (4I).

7. An arrangement according to claim 6, wherein said prolonged portion (22c) provided in the tail gate glass (22) is formed to be a frosted area (22d) with the exception of said clear areas (22f and 22e).

8. An arrangement according to any one of claims I to 7, further comprising rear portions (50a) of left and right rear quarter window glasses (50) each having a rear end facing one of left and right ends of said tail gate glass (22) with a predetermined space between.

9. An arrangement according to claim 8, wherein said rear end portion of the vehicle body (I0) includes left and right rear pillars (60) facing each other with said opening between, and said rear portions (50a) of the left and right rear quarter

window glasses (50) are fixed with an adhesive agent (30) to said left and right rear pillars (60), respectively.

10. An arrangement according to claim 9 further comprising an air extractor (62) provided for ventilating the inside of said vehicle body (10) on each of said left and right rear pillars (60), said air extractor (62) being connected to an opening (50b) formed on each of said rear portions (50a) of the left and right rear quarter window glasses (50) fixed to said left and right rear pillars (60), respectively.

11. An arrangement according to claim 10. wherein said air extractor (62) includes an air outlet trim (64) for engaging with said opening (50b) formed on each of said rear portions (50a) of the left and right rear guater window glasses (50).

12. An arrangement according to claim 11, wherein said air outlet trim (64) comprises a base portion (64a) fixed on one of the left and right rear pillars (60) by a screward (66), a side wall portion (64b) standing up from said base portion (64a) to surround a space on said base portion (64a) and provided thereon with an opening (64c), and a fringe portion (64d) disposed at the end of side wall portion (64b) and engaged with the opening (50b) provided on one of said rear portions (50a) of the left and right rear quarter window glasses (50).

FIG. 1

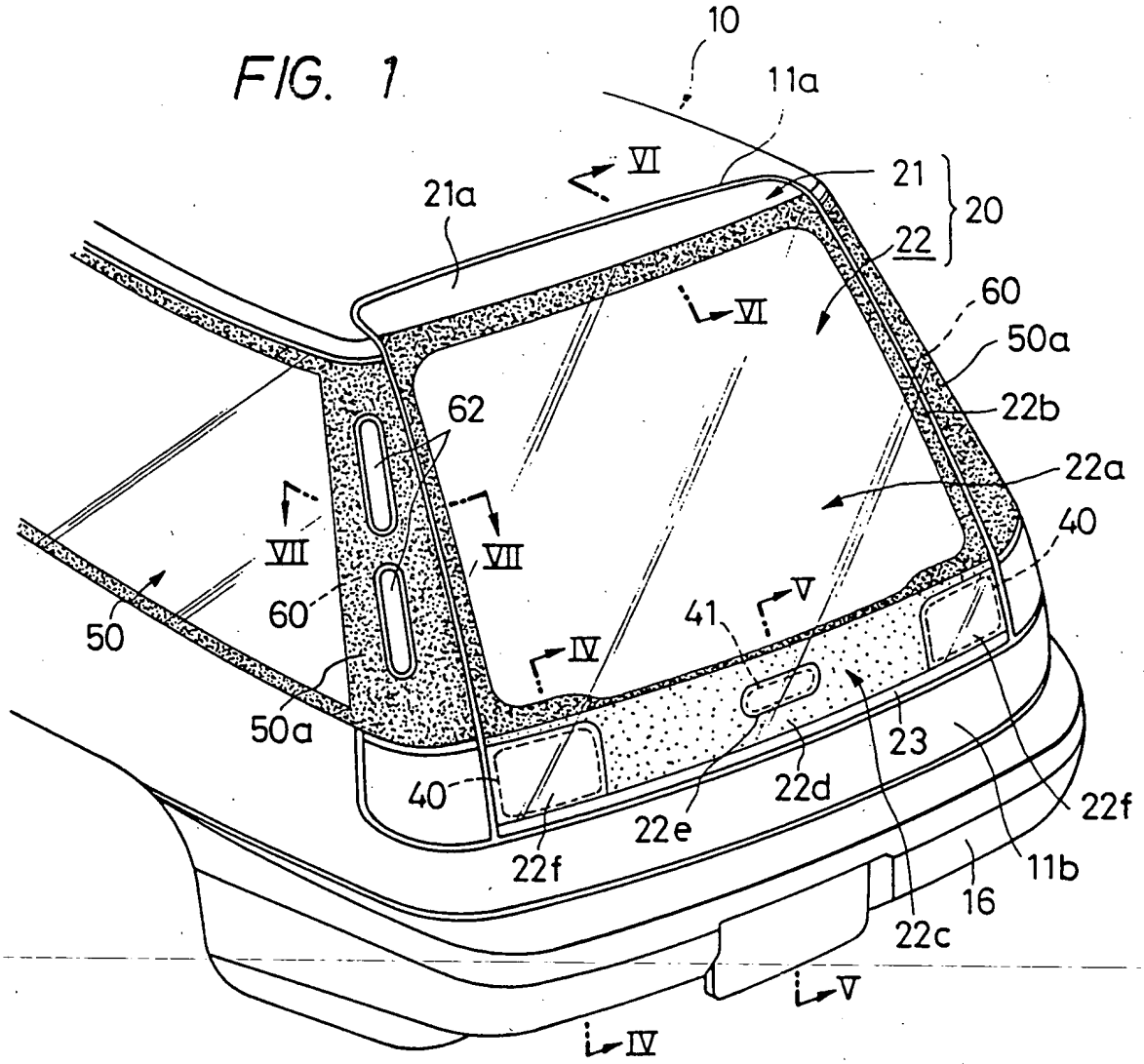

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FIG. 6

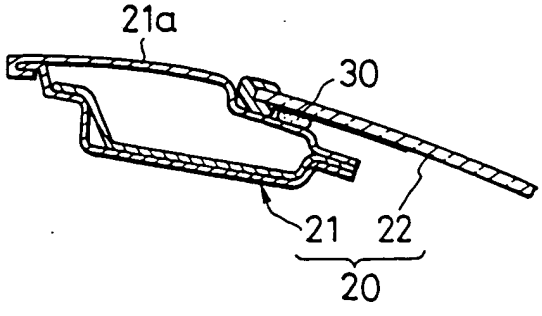
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FIG. 2

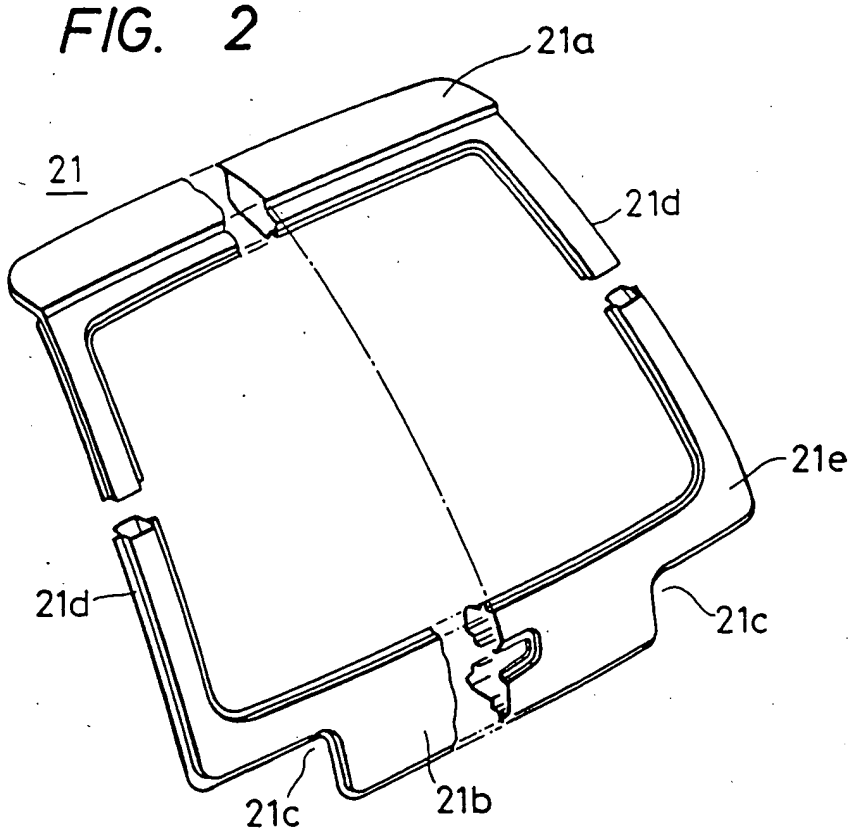


FIG. 3

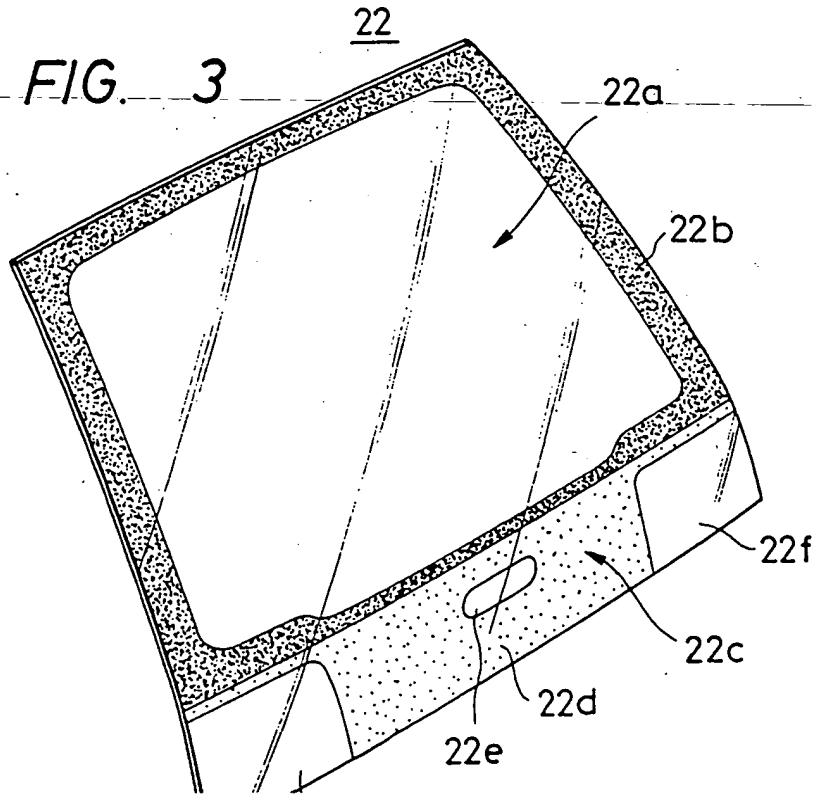
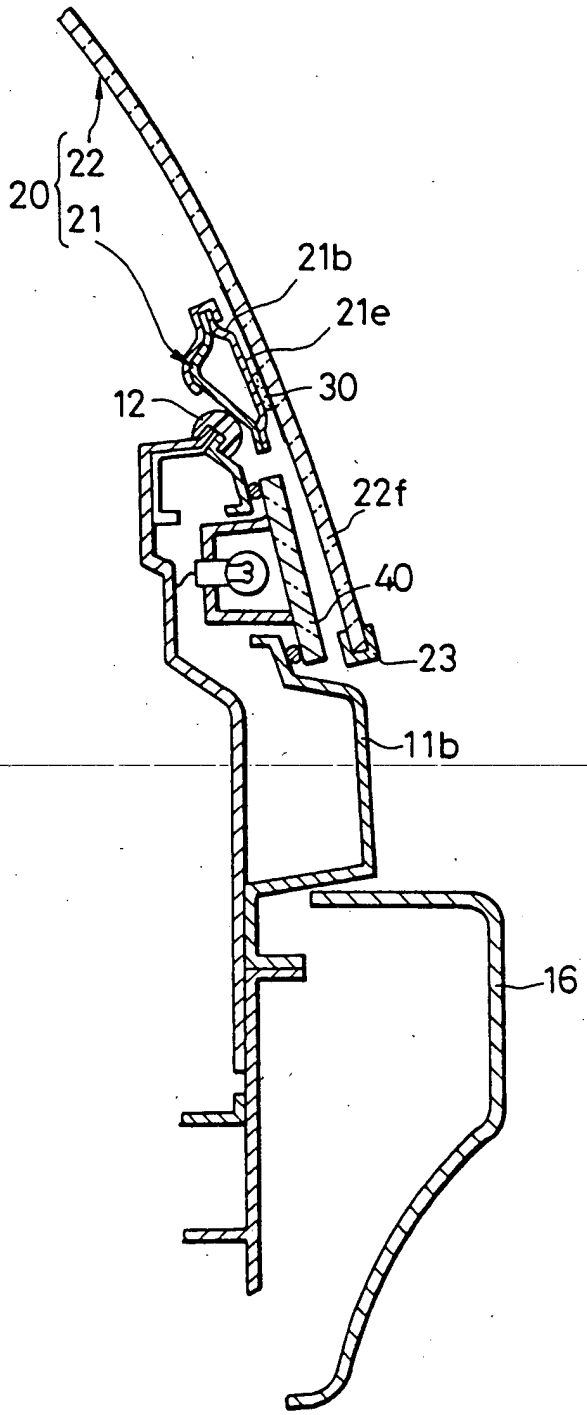


FIG. 4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11b
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FIG. 5

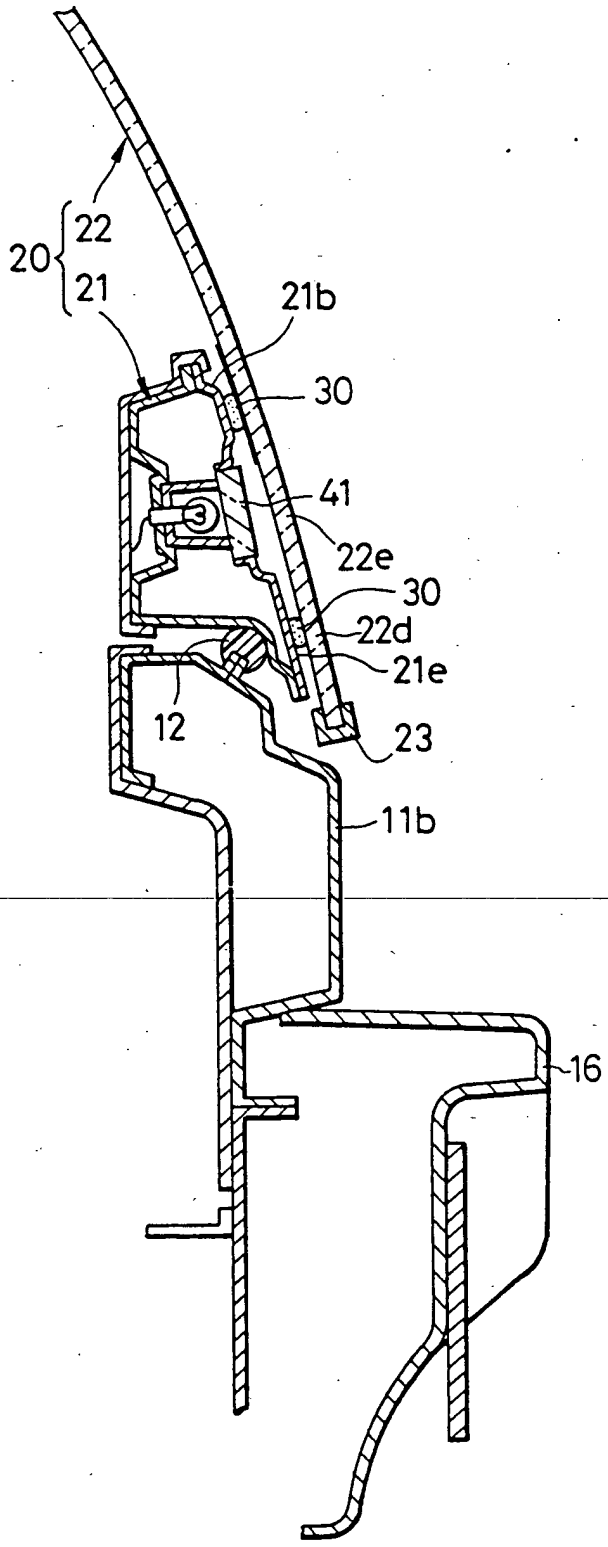
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FIG. 7

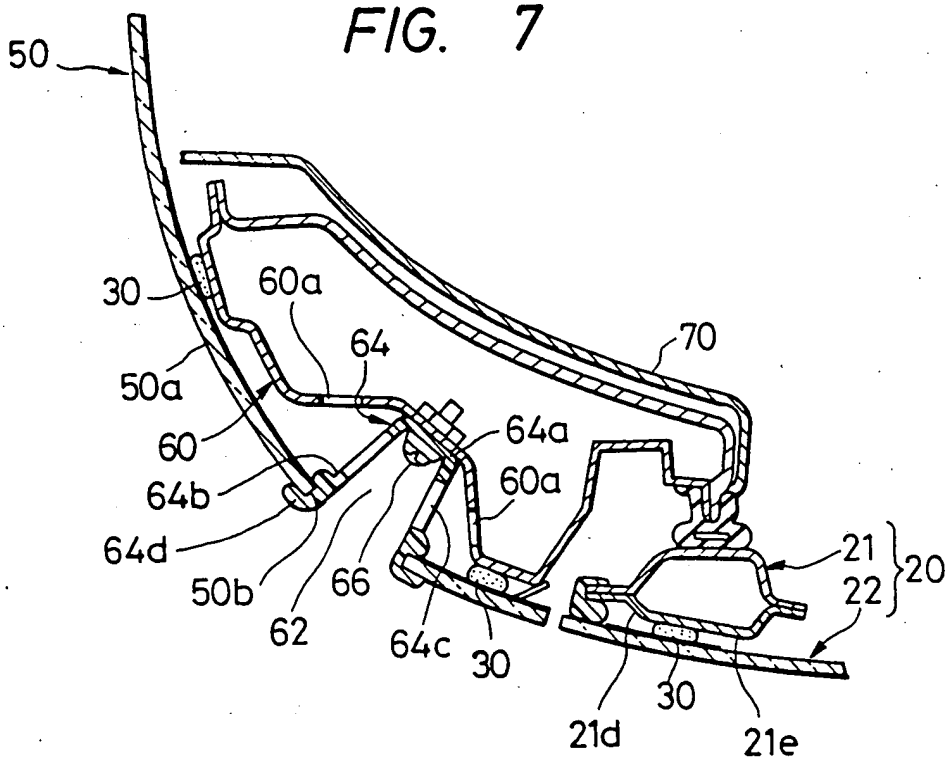
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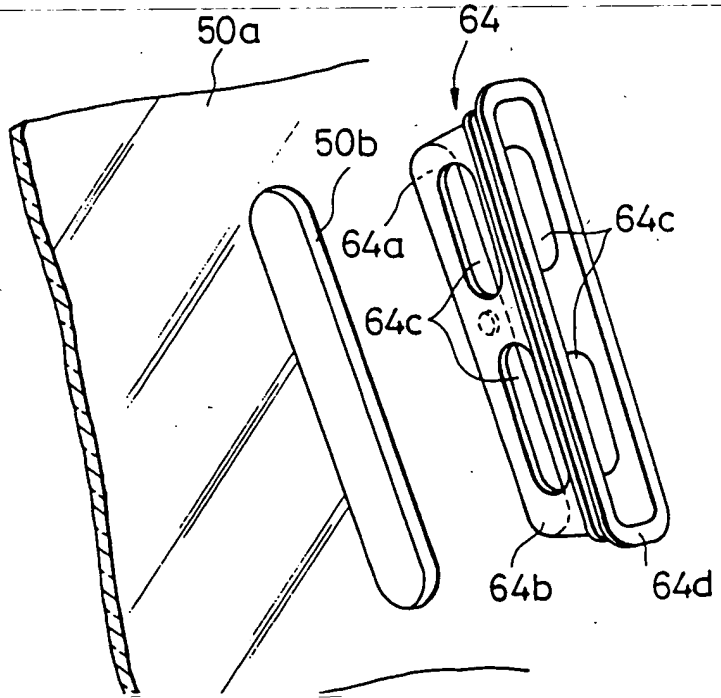
FIG. 8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EUROPEAN SEARCH REPORT

Application number

EP 87 11 1129

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int Cl.4)
X	EP-A-0 053 783 (NISSAN) * Page 6, line 10 - page 10, line 9; figures 3-5 *	1	B 60 J 5/10 B 60 Q 1/30 B 60 H 1/24
A	FR-A-2 470 709 (DAIMLER-BENZ) * Page 2, line 34 - page 3, line 4; figures 2,3 *	1	
A	DE-A-2 903 547 (COLANI) * Page 5, lines 9-22; figure 1 *	1	
A	GB-A-1 066 371 (FORD) * Page 1, line 48 - page 2, line 13; figures 1,2 *	10,11	

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

B 60 J
B 60 Q

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	28-10-1987	AYITER I.

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13.82 Form